AUTHOR INDEX VOLUME 110

A

Adams, B., and Tanabe, T. Structural regions of the cardiac Ca channel α_{1C} subunit involved in Ca-dependent inactivation. 379.

Aldrich, R.W. *See* Cox, Cui, and Aldrich.

Aoki, K. *See* Kaneda, Mochizuki, Aoki, and Kaneko.

Apkon, M. *See* Bevensee, Apkon, and Boron.

Arena, J.P. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

Auerbach, A. *See* Premkumar and Auerbach.

— *See* Wang, Auerbach, Bren, Ohno, Engel, and Sine.

B

Backx, P.H. *See* Tsushima, Li, and Backx.

Balke, C.W. *See* Bhat, Zhao, Zang, Balke, Takeshima, Wier, and Ma.

Barg, S. *See* Gromada, Bokvist, Ding, Barg, Buschard, Renström, and Rorsman.

Baumgarten, C.M. *See* Clemo and Baumgarten.

Baumgartner, W. *See* Schumann, Romanin, Baumgartner, and Groschner.

Bevensee, M.O., Apkon, M., and Boron, W.F. Intracellular pH regulation in cultured astrocytes from rat hippocampus. II. Electrogenic Na/HCO_3 cotransport. 467.

—, Weed, R.A., and Boron, W.F. Intracellular pH regulation in cultured astrocytes from rat hippocampus. I. Role of HCO_3^-. 453.

Bezanilla, F. *See* Olcese, Latorre, Toro, Bezanilla, and Stefani.

Bhat, M.B., Zhao, J., Zang, W., Balke, C.W., Takeshima, H., Wier, W.G., and Ma, J. Caffeine-induced release of intracellular Ca^{2+} from Chinese hamster ovary cells expressing skeletal muscle ryanodine receptor: Effects on full-length and carboxyl-terminal portion of Ca^{2+} release channels. 749.

Black, K.D. *See* Fodor, Black, and Zagotta.

Bokvist, K. *See* Gromada, Bokvist, Ding, Barg, Buschard, Renström, and Rorsman.

Boron, W.F. *See* Bevensee, Apkon, and Boron.

— *See* Bevensee, Weed, and Boron.

— *See* Hogan, Davis, and Boron.

— *See* Zahler, Zhang, Manor, and Boron.

Bowlby, M.R., Fadool, D.A., Holmes, T.C., and Levitan, I.B. Modulation of the Kv1.3 potassium channel by receptor tyrosine kinases. 601.

Bren, N. *See* Wang, Auerbach, Bren, Ohno, Engel, and Sine.

Buschard, K. *See* Gromada, Bokvist, Ding, Barg, Buschard, Renström, and Rorsman.

C

Catterall, W.A. *See* Johnson, Zheng, Korach, Scheuer, Catterall, and Rubanyi.

Chang, X.-B. *See* Linsdell, Tabcharani, Rommens, Hou, Chang, Tsui, Riordan, and Hanrahan.

Chen, F.S.P., Steele, D., and Fedida, D. Allosteric effects of permeating cations on gating currents during K^+ channel deactivation. 87.

Chow, C.-W., Kapus, A., Romanek, R., and Grinstein, S. NO_3^--induced pH changes in mammalian cells: Evidence for an NO_3^--H^+ cotransporter. 185.

Clemo, H.F., and Baumgarten, C.M. Swelling-activated Gd^{3+}-sensitive cation current and cell volume regulation in rabbit ventricular myocytes. 297.

Cohen, C.J. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

Collier, R.J. *See* Huynh, Cui, Zhan, Oh, Collier, and Finkelstein.

Cox, D.H., Cui, J., and Aldrich, R.W. Allosteric gating of a large conductance Ca-activated K^+ channel. 257.

Cui, C. *See* Huynh, Cui, Zhan, Oh, Collier, and Finkelstein.

Cui, J. *See* Cox, Cui, and Aldrich.

D

Dai, J., Ting-Beall, H.P., and Sheetz, M.P. The secretion-coupled endocytosis correlates with membrane tension changes in RBL 2H3 cells. 1.

Davis, B.A. *See* Hogan, Davis, and Boron.

Dawson, D.C., and Smith, S.S. *Commentary:* Cystic fibrosis transmembrane conductance regulator: Permeant ions find the pore. 337.

Ding, W.-G. *See* Gromada, Bokvist, Ding, Barg, Buschard, Renström, and Rorsman.

Downey, G.P. *See* Marunaka, Shintani, Downey, and Niisato.

Drake, S.K., Zimmer, M.A., Kundrot, C., and Falke, J.J. Molecular tuning of an EF-hand-like calcium binding loop: Contributions of the coordinating side chain at loop position 3. 173.

Droogmans, G. *See* Voets, Droogmans, and Nilius.

Dürr, C. *See* Fahkle, Dürr, and George.

E

Ehrlich, B.E. *See* Kaftan, Ehrlich, and Watras.

Engel, A.G. *See* Wang, Auerbach, Bren, Ohno, Engel, and Sine.

Enyeart, J.A. *See* Enyeart, Gomora, Xu, and Enyeart.

Enyeart, J.J., Gomora, J.C., Xu, L., and Enyeart, J.A. Adenosine triphosphate activates a noninactivating K^+ current in adrenal cortical cells through nonhydrolytic binding. 679.

F

Fadool, D.A. *See* Bowlby, Fadool, Holmes, and Levitan.

Fahkle, C., Dürr, C., and George, A.L., Jr. Mechanism of ion permeation in skeletal muscle chloride channels. 551.

Falke, J.J. *See* Drake, Zimmer, Kundrot, and Falke.

Farinas, J., Kneen, M., Moore, M., and Verkman, A.S. Plasma membrane water permeability of cultured cells and epithelia measured by light microscopy with spatial filtering. 283.

Favre, I. *See* Sun, Favre, Schild, and Moczydlowski.

Fedida, D. *See* Chen, Steele, and Fedida.

Ferrigni, T. *See* Shyng, Ferrigni, and Nichols.

Finkelstein, A. *See* Huynh, Cui, Zhan, Oh, Collier, and Finkelstein.

Fodor, A.A., Black, K.D., and Zagotta, W.N. Tetracacine reports a conformational change in the pore of cyclic nucleotidegated channels. 591.

G

Ganetzky, B. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

George, A.L., Jr. *See* Fahkle, Dürr, and George.

Giebisch, G. *See* Lu, Giebisch, and Wang.

Gillette, R. *See* Sudlow and Gillette.

Goldin, A.L. *See* Kontis and Goldin.

— *See* Kontis, Rounaghi, and Goldin.

Gomora, J.C. *See* Enyeart, Gomora, Xu, and Enyeart.

Grinstein, S. *See* Chow, Kapus, Romanek, and Grinstein.

Gromada, J., Bokvist, K., Ding, W.-G., Barg, S., Buschard, K., Renström, E., and Rorsman, P. Adrenaline stimulates glucagon secretion in pancreatic A-cells by increasing the Ca^{2+} current and the number of granules close to the L-type Ca^{2+} channels. 217.

Groschner, K. *See* Schumann, Romanin, Baumgartner, and Groschner.

H

Hackos, D.H., and Korenbrot, J.I. Calcium modulation of ligand affinity in the cyclic GMP-gated ion channels of cone photoreceptors. 515.

Hanrahan, J.W. *See* Linsdell, Tabcharani, and Hanrahan.

— *See* Linsdell, Tabcharani, Rommens, Hou, Chang, Tsui, Riordan, and Hanrahan.

— *See* Tabcharani, Linsdell, and Hanrahan.

Hartmann, H.A. *See* Townsend, Hartmann, and Horn.

Heinemann, S.H. *See* Starkus, Kuschel, Rayner, and Heinemann.

Hogan, E.M., Davis, B.A., and Boron, W.F. Intracellular Cl^- dependence of Na-H exchange in barnacle muscle fibers under normotonic and hypertonic conditions. 629.

Holmes, T.C. *See* Bowlby, Fadool, Holmes, and Levitan.

Horn, R. *See* Townsend, Hartmann, and Horn.

— *See* Townsend and Horn.

Hou, Y.-X. *See* Linsdell, Tabcharani, Rommens, Hou, Chang, Tsui, Riordan, and Hanrahan.

Huynh, P.D., Cui, C., Zhan, H., Oh, K.J., Collier, R.J., and Finkelstein, A. Probing the structure of the diphtheria toxin channel: Reactivity in planar lipid bilayer membranes of cysteine-substituted mutant channels with methanethiosulfonate derivatives. 29.

J

Jentsch, T.J. *See* Ludewig, Jentsch, and Pusch.

Johnson, B.D., Zheng, W., Korach, K.S., Scheuer, T., Catterall, W.A., and Rubanyi, G.M. Increased expression of the cardiac L-type calcium channel in estrogen receptordeficient mice. 135.

K

Kaczorowski, G.J. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

Kaftan, E.J., Ehrlich, B.E., and Watras, J. Inositol 1,4,5-Trisphosphate ($InsP_3$) and calcium interact to increase the dynamic range of $InsP_3$ receptor-dependent calcium signaling. 529.

Kaneda, M., Mochizuki, M., Aoki, K., and Kaneko, A. Modulation of $GABA_C$ response by Ca^{2+} and other divalent cations in horizontal cells of the catfish retina. 741.

Kaneko, A. *See* Kaneda, Mochizuki, Aoki, and Kaneko.

Kao, C.Y. *See* Yoshino, Wang, and Kao.

Kapus, A. *See* Chow, Kapus, Romanek, and Grinstein.

Kits, K.S., Lodder, J.C., and Veerman, M.J. Phe-Met-Arg-Phe-amide activates a novel voltage-dependent K^+ current through a lipoxygenase pathway in molluscan neurones. 611.

Kneen, M. *See* Farinas, Kneen, Moore, and Verkman.

Kontis, K.J., and Goldin, A.L. Sodium channel inactivation is altered by substitution of voltage sensor positive charges. 403. Correction. 765.

Kontis, K.J., Rounaghi, A., and Goldin, A.L. Sodium channel activation gating is affected by substitutions of voltage sensor positive charges in all four domains. 391. Correction. 763.

Korach, K.S. *See* Johnson, Zheng, Korach, Scheuer, Catterall, and Rubanyi.

Korenbrot, J.I. *See* Hackos and Korenbrot.

Kotlikoff, M.I. *See* Wang, Nara, Wang, and Kotlikoff.

Kundrot, C. *See* Drake, Zimmer, Kundrot, and Falke.

Kuschel, L. *See* Starkus, Kuschel, Rayner, and Heinemann.

L

Lacaz-Vieira, F. Calcium site specificity: Early Ca^{2+}-related tight junction events. 727.

Latorre, R. *See* Olcese, Latorre, Toro, Bezanilla, and Stefani.

Levitan, I.B. *See* Bowlby, Fadool, Holmes, and Levitan.

Li, R.A. *See* Tsushima, Li, and Backx.

Linsdell, P., Tabcharani, J.A., and Hanrahan, J.W. Multi-ion mechanism for ion permeation and block in the cystic fibrosis transmembrane conductance regulator chloride channel. 365.

—, **Tabcharani, J.A., Rommens, J.M., Hou, Y.-X., Chang, X.-B., Tsui, L.-C., Riordan, J.R., and Hanrahan, J.W.** Permeability of wild-type and mutant cystic fibrosis transmembrane conductance regulator chloride channels to polyatomic anions. 355.

— *See* Tabcharani, Linsdell, and Hanrahan.

Liu, K. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

Lodder, J.C. *See* Kits, Lodder, and Veerman.

Lu, M., Giebisch, G., and Wang, W.H. Nitric oxide links the apical Na^+ transport to the basolateral K^+ conductance in the rat cortical collecting duct. 717.

Ludewig, U., Jentsch, T.J., and Pusch, M. Inward rectification in ClC-0 chloride channels caused by mutations in several protein regions. 165.

M

Ma, J. *See* Bhat, Zhao, Zang, Balke, Takeshima, Wier, and Ma.

Manor, M. *See* Zahler, Zhang, Manor, and Boron.

Marunaka, Y., Shintani, Y., Downey, G.P., and Niisato, N. Activation of Na^+-permeant cation channel by stretch and cyclic AMP-dependent phosphorylation in renal epithelial A6 cells. 327.

Mitsuiye, T. *See* Wang, Mitsuiye, Rees, and Noma.

Miwa, A. *See* Sabirov, Tominaga, Miwa, Okada, and Oiki.

Mochizuki, M. *See* Kaneda, Mochizuki, Aoki, and Kaneko.

Moczydlowski, E. *See* Sun, Favre, Schild, and Moczydlowski.
Moore, M. *See* Farinas, Kneen, Moore, and Verkman.

N

Nakatani, K. *See* Xiong, Nakatani, Ye, and Yau.
Nara, M. *See* Wang, Nara, Wang, and Kotlikoff.
Nichols, C.G. *See* Shyng, Ferrigni, and Nichols.
— *See* Shyng and Nichols.
Niisato, N. *See* Marunaka, Shintani, Downey, and Niisato.
Nilius, B. *See* Voets, Droogmans, and Nilius.
Noma, A. *See* Wang, Mitsuiye, Rees, and Noma.

O

Oh, K.J. *See* Huynh, Cui, Zhan, Oh, Collier, and Finkelstein.
Ohno, K. *See* Wang, Auerbach, Bren, Ohno, Engel, and Sine.
Oiki, S. *See* Sabirov, Tominaga, Miwa, Okada, and Oiki.
Okada, Y. *See* Sabirov, Tominaga, Miwa, Okada, and Oiki.
Olcese, R., Latorre, R., Toro, L., Bezanilla, F., and Stefani, E. Correlation between charge movement and ionic current during slow inactivation in *Shaker* K^+ channels. 579.

P

Pizarro, G. *See* Stern, Pizarro, and Ríos.
Premkumar, L.S., and Auerbach, A. Stoichiometry of recombinant *N*-methyl-D-aspartate receptor channels inferred from single-channel current patterns. 485.
Pusch, M. *See* Ludewig, Jentsch, and Pusch.

Q

Qian, S. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

R

Rayner, M.D. *See* Starkus, Kuschel, Rayner, and Heinemann.
Reenan, R.A.G. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.
Rees, S.A. *See* Wang, Mitsuiye, Rees, and Noma.
Renström, E. *See* Gromada, Bokvist, Ding, Barg, Buschard, Renström, and Rorsman.
Riordan, J.R. *See* Linsdell, Tabcharani, Rommens, Hou, Chang, Tsui, Riordan, and Hanrahan.
Ríos, E. *See* Stern, Pizarro, and Ríos.
Romanek, R. *See* Chow, Kapus, Romanek, and Grinstein.
Romanin, C. *See* Schumann, Romanin, Baumgartner, and Groschner.
Rommens, J.M. *See* Linsdell, Tabcharani, Rommens, Hou, Chang, Tsui, Riordan, and Hanrahan.
Rorsman, P. *See* Gromada, Bokvist, Ding, Barg, Buschard, Renström, and Rorsman.
Rounaghi, A. *See* Kontis, Rounaghi, and Goldin.
Rubanyi, G.M. *See* Johnson, Zheng, Korach, Scheuer, Catterall, and Rubanyi.

S

Sabirov, R.Z., Tominaga, T., Miwa, A., Okada, Y., and Oiki, S. A conserved arginine residue in the pore region of an inward rectifier K channel (IRK1) as an external barrier for cationic blockers. 665.
Scheuer, T. *See* Johnson, Zheng, Korach, Scheuer, Catterall, and Rubanyi.
Schild, L. *See* Sun, Favre, Schild, and Moczydlowski.
Schumann, K., Romanin, C., Baumgartner, W., and Groschner, K. Intracellular Ca^{2+} inhibits smooth muscle L-type Ca^{2+} channels by activation of protein phosphatase type 2B and by direct interaction with the channel. 503.
Sheetz, M.P. *See* Dai, Ting-Beall, and Sheetz.
Shen, W. *See* Zhang, Shen, and Slaughter.
Shintani, Y. *See* Marunaka, Shintani, Downey, and Niisato.
Shyng, S.-L., Ferrigni, T., and Nichols, C.G. Control of rectification and gating of cloned K_{ATP} channels by the Kir6.2 subunit. 141.
—, Ferrigni, T., and Nichols, C.G. Regulation of K_{ATP} channel activity by diazoxide and MgADP: Distinct functions of the two nucleotide binding folds of the sulfonylurea receptor. 643.
—, and Nichols, C.G. Octameric stoichiometry of the K_{ATP} channel complex. 655.
Sigworth, F.J. *See* Zheng and Sigworth.
Sine, S.M. *See* Wang, Auerbach, Bren, Ohno, Engel, and Sine.
Slaughter, M.M. *See* Zhang, Shen, and Slaughter.
Smith, S.S. *See* Dawson and Smith.
Starkus, J.G., Kuschel, L., Rayner, M.D., and Heinemann, S.H. Ion conduction through C-type inactivated *Shaker* channels. 539.
Steele, D. *See* Chen, Steele, and Fedida.
Stefani, E. *See* Olcese, Latorre, Toro, Bezanilla, and Stefani.
Stern, M.D., Pizarro, G., and Ríos, E. Local control model of excitationcontraction coupling in skeletal muscle. 415. Correction. 641.
Sudlow, L.C., and Gillette, R. Cyclic AMP levels, adenylyl cyclase activity, and their stimulation by serotonin quantified in intact neurons. 243.
Sun, Y.-M., Favre, I., Schild, L., and Moczydlowski, E. On the structural basis for size-selective permeation of organic cations through the voltage-gated sodium channel: Effect of alanine mutations at the DEKA locus on selectivity, inhibition by Ca^{2+} and H^+, and molecular sieving. 693.

T

Tabcharani, J.A., Linsdell, P., and Hanrahan, J.W. Halide permeation in wild-type and mutant cystic fibrosis transmembrane conductance regulator chloride channels. 341.
— *See* Linsdell, Tabcharani, and Hanrahan.
— *See* Linsdell, Tabcharani, Rommens, Hou, Chang, Tsui, Riordan, and Hanrahan.
Takeshima, H. *See* Bhat, Zhao, Zang, Balke, Takeshima, Wier, and Ma.
Tanabe, T. *See* Adams and Tanabe.
Thompson, S.H. Cyclic GMPgated channels in a sympathetic neuron cell line. 155.
Ting-Beall, H.P. *See* Dai, Ting-Beall, and Sheetz.
Tominaga, T. *See* Sabirov, Tominaga, Miwa, Okada, and Oiki.
Toro, L. *See* Olcese, Latorre, Toro, Bezanilla, and Stefani.
Townsend, C., Hartmann, H.A., and Horn, R. Anomalous effect of permeant ion concentration on peak open probability of cardiac Na^+ channels. 11.

—, **and Horn, R.** Effect of alkali metal cations on slow inactivation of cardiac Na^+ channels. 23.

Tsui, L.-C. *See* Linsdell, Tabcharani, Rommens, Hou, Chang, Tsui, Riordan, and Hanrahan.

Tsushima, R.G., Li, R.A., and Backx, P.H. P-loop flexibility in Na^+ channel pores revealed by single- and double-cysteine replacements. 59.

V

Van der Ploeg, L.H.T. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

Veerman, M.J. *See* Kits, Lodder, and Veerman.

Verkman, A.S. *See* Farinas, Kneen, Moore, and Verkman.

Voets, T., Droogmans, G., and Nilius, B. Modulation of voltage-dependent properties of a swelling-activated Cl^- current. 313.

W

Wang, H.-L., Auerbach, A., Bren, N., Ohno, K., Engel, A.G., and Sine, S.M. Mutation in the M1 domain of the acetylcholine receptor α subunit decreases the rate of agonist dissociation: Correction. 215.

Wang, J. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

Wang, P. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

Wang, S.Y. *See* Yoshino, Wang, and Kao.

Wang, W.H. *See* Lu, Giebisch, and Wang.

Wang, Y.-X. *See* Wang, Nara, Wang, and Kotlikoff.

Wang, Z., Mitsuiye, T., Rees, S.A., and Noma, A. Regulatory volume decrease of cardiac myocytes induced by β-adrenergic activation of the Cl^- channel in guinea pig. 73.

Wang, Z.-W., Nara, M., Wang, Y.-X., and Kotlikoff, M.I. Redox regulation of large conductance Ca^{2+}-activated K^+ channels in smooth muscle cells. 35.

Warmke, J.W., Reenan, R.A.G., Wang, P., Qian, S., Arena, J.P., Wang, J., Wunderler, D., Liu, K., Kaczorowski, G.J., Van der Ploeg, L.H.T., Ganetzky, B., and Cohen, C.J. Functional expression of *Drosophila para* sodium channels: Modulation by the membrane protein TipE and toxin pharmacology. 119.

Watras, J. *See* Kaftan, Ehrlich, and Watras.

Weed, R.A. *See* Bevensee, Weed, and Boron.

Wier, W.G. *See* Bhat, Zhao, Zang, Balke, Takeshima, Wier, and Ma.

Wunderler, D. *See* Warmke, Reenan, Wang, Qian, Arena, Wang, Wunderler, Liu, Kaczorowski, Van der Ploeg, Ganetzky, and Cohen.

X

Xiong, W.-H., Nakatani, K., Ye, B., and Yau, K.-W. Protein kinase C activity and light sensitivity of single amphibian rods. 441.

Xu, L. *See* Enyeart, Gomora, Xu, and Enyeart.

Y

Yau, K.-W. *See* Xiong, Nakatani, Ye, and Yau.

Ye, B. *See* Xiong, Nakatani, Ye, and Yau.

Yellen, G. *Commentary:* Single channel seeks permeant ion for brief but intimate relationship. 83.

Yoshino, M., Wang, S.Y., and Kao, C.Y. Sodium and calcium inward currents in freshly dissociated smooth myocytes of rat uterus. 565.

Z

Zagotta, W.N. *See* Fodor, Black, and Zagotta.

Zahler, R., Zhang, Z.-T., Manor, M., and Boron, W.F. Sodium kinetics of Na,K-ATPase α isoforms in intact transfected HeLa cells. 201.

Zang, W. *See* Bhat, Zhao, Zang, Balke, Takeshima, Wier, and Ma.

Zhan, H. *See* Huynh, Cui, Zhan, Oh, Collier, and Finkelstein.

Zhang, J., Shen, W., and Slaughter, M.M. Two metabotropic γ-aminobutyric acid receptors differentially modulate calcium currents in retinal ganglion cells. 45.

Zhang, Z.-T. *See* Zahler, Zhang, Manor, and Boron.

Zhao, J. *See* Bhat, Zhao, Zang, Balke, Takeshima, Wier, and Ma.

Zheng, J., and Sigworth, F.J. Selectivity changes during activation of mutant *Shaker* potassium channels. 101.

Zheng, W. *See* Johnson, Zheng, Korach, Scheuer, Catterall, and Rubanyi.

Zimmer, M.A. *See* Drake, Zimmer, Kundrot, and Falke.